Gateway

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The ARRL Packet-Radio Newsletter

HF AUTOMATIC FORWARDING STA EXTENTION SOUGHT

At the December meeting of the ARRL Executive Committee, the ARRL Executive Vice President was authorized to request a one-year extension of the HF packet radio special temporary authorization (STA) to allow continued automatic operation of some stations below 30 MHz while passing third party traffic. The ARRL Ad Hoc Committee on Amateur Digital Communication ("the Digital Committee") is requested to draft rule changes as may be required to clear up existing problems and permit permanent automatic operation below 30 MHz.

from The ARRL Letter

UoSAT-OSCAR 11 BACK TO NORMAL

UoSAT-OSCAR 11 (UO-11) was returned to normal operations on December 16 following problems experienced with the new Forth Diary on board computer software, which was loaded for the first time in November. The Forth Diary was developed to support more complex attitude control algorithms on the spacecraft and to simplify routine operations. The new software ran correctly when first loaded into the UO-11 computer, but, when the spacecraft appeared on the next orbit in range of the mission control center, the computer had crashed with null characters being transmitted on the 145-MHz downlink.

Efforts at mission control were immediately directed towards simulation and diagnosis of the problem using the UO-11 spacecraft simulator on the ground (the new software had been running on this simulator - the spacecraft engineering model - for several weeks prior to loading into the UO-11 computer). It proved impossible to recreate the problem on the ground and, thus, it has been suggested that possibly the 32-kbyte memory bank on UO-11 has a bad memory location(s). This theory will be tested by running diagnostics on the UO-11 computer shortly.

Resumption of normal service took considerable time and effort because control had to be effected through the less amenable UHF command uplink and very careful procedures had to be worked out to minimize the risk to the spacecraft while, at the same time, providing the maximum of diagnostic information on the computer software state.

We apologize for the interruption to the UO-11 service and thank all those who sent their best wishes and offered help during this period.

from UoSAT Mission Control Centre,
University of Surrey, Guildford, Surrey, England

PACKET RADIO TO SUPPORT TRANSPOLAR CROSS-COUNTRIES SKI TREK

Amateur packet radio will provide the communication link between civilization and a group of Canadian and Russians attempting to ski from Russia to Canada via the North Pole. The scientific expedition is scheduled on or about March 1 and will be comprised of four Canadian and seven to ten Russian skiers who will begin their trek from Cape Arktichesky on the Severnaya Zeml'a Islands to Cape Columbia on Ellesmere Island. The organizers of the 3-month, 1,077-mile trip are the Soviet youth newspaper Komsomolskaya Pravda and the Polar Bridge Company, a group organized by the Canadian skiers.

Besides providing communications via packet radio, "Project Nordski Comm" (the communications effort for the trip), will also provide navigation for the skiers. By means of the talking computer on board UoSAT-OSCAR 11 (UO-11), the skiers will be able to hear their location read to them over hand-held Amateur Radio equipment (on 145.825 MHz) as UO-11 passes over approximately every 100 minutes.

For more information, write to Richard C. Ensign. AMSAT Science Education Advisor, 421 N. Military, Dearborn, MI 48124 or telephone 313-278-0900 during the school day or 313-274-1718 during evenings and weekends.

NETWORK NEWS

TexNet Adds Support For Multiple Packet Message Systems

Support for multiple Packet Message Systems (PMS) on a network has been added to the TexNet. One of the features of TexNet is facilities for a PMS, a forwarding PBBS that is capable of multiple connections throughout the entire network. Formerly, each TexNet node designated (in its firmware) the location of the PMS server in its particular area or sub-network. For example, assume a TexNet system linking Wichita Falls, Fort Worth, Dallas, Hillsboro, Austin, San Antonio, Corpus Christi and Brownsville. In this example, Wichita Falls, Fort Worth, Dallas and Hillsboro are served by the Dallas PMS, while San Antonio and Corpus Christi use the Brownsville PMS and Austin has its own. A change to the software now adds the ability to have a PMS at each node and the TexNet user is able to specify which PMS he wishes to access. For example, by invoking the command "MESSAGE @ CORPUS," the Fort Worth user would be connected to the Corpus Christi PMS, while "MESSAGE" alone would connect the user with the 'home' PMS.

from Wayne Day, KF5ZC, via CompuServe's HamNet

New TCP/IP Software Version Available

A new version of Phil Karn's KA9Q TCP/IP software package is now available. The 871225.0 software release is a major revision and includes the following changes and additions:

o Parameters to the param command are now in decimal, not hexadecimal (be sure to update your AUTOEXEC.NET files).

o A fix to the TNC-1 KISS by Marc Kaufman.

o Complete support for AX.25 level 2 connected mode, including both the ability to have level 2 connections as a session type and the ability to push IP datagrams across connected-mode links. This means that you can run KISS TNC 24 hours per day, and still talk to your local PBBS. (This portion of the package is based on work done by Jon Bloom, KE3Z, and hacked wildly by KA9Q.)

o Support for the Apple Macintosh and Commodore Amiga computers provided by Mikel Matthews. The binaries are provided unencoded for the Amiga, and in BinHex format for the Mac. (The binaries are slightly out of sync with the sources and sport a different version number.)

o Support for System 5 Unix by Jere Sandidge.

o Major enhancements to the SMTP modules and the BM mail user interface by Dave Trulli, NN2Z.

o A newly integrated, all-in-one manual by Bdale Garbee, N3EUA, based heavily on the previously available documents, but with considerable updating and integration.

o The ability to record TELNET and AX.25 connected mode sessions in a file.

o The ability to perform an ASCII text upload of a file to a TELNET or AX.25 session.

o Considerable modification of the command interpreter.

o An update to the PBBS/SMTP gateway software by Robert Gibson, WA3PXX.

o A driver for the Eagle I/O card based on the Zilog 8530.

KA9Q TCP/IP software is available from the following sources:

1. Direct UUCP connection to "winfree" is available to those who request it for polling.

2. N3EUA's BBS (telephone 303-495-2061); log on and download from the appropriate files area.

3. Tucson Amateur Packet Radio Corporation (TAPR, Box 22888, Tucson, AZ 85734, telephone 602-746-1166).

4. Internet: on SIMTEL20.ARPA in the directory PD:<MSDOS.PACKET>.

from Bdale Garbee, N3EUA (@ KØHOA)

COSI-Switch Status

Tom Moulton, W2VY, has The Radio Amateur Telecommunications Society (RATS) COSI-Switch code in the initial Z80 target machine (TNC 2) and has begun the debugging process. He has completed an exhaustive set of software and protocol tests on an IBM PC and on a Z80-based CP/M computer. The protocol tests diagnose the whole system with the exception of the drivers. Beta testing was scheduled to begin in December and the source code release date is scheduled for late January. Target machines for this release include the TNC 2 family and Pac-COMM's DR-200 and DR-100.

RATS is expecting the arrival of a beta test PC-186 four-port packet switch board and COSI-Switch will be ported to this device to provide a vehicle for high-speed (greater than 56-kbit/s) links.

from J. Gordon Beattie, Jr., N2DSY (@ KD6TH)

GB3UP/DCE STATUS REPORT

The following status report concerning the GB3UP/DCE project was filed by Jeff Ward, GØ/K8KA.

GB3UP: The PBBS has been converted to a WA7MBL system running on an Opus PC-11 with a 20-Mbyte hard disk. The system shuts down automatically during passes of either UoSAT-1 or UoSAT-2.

DCE: A big wind storm blew down the UoSAT control station antennas and they were down for about a week. Aside from that period, regular DCE forwarding has been taking place. I seem to be getting a few messages each day for the DCE.

Gateway status:

GB2UP (connected to GB3UP) - fully operational (two-day message delay at most, either on Wednesdays or at weekends).

NK6K - Not operational.

WA9FMQ - Sporadic.

K1KSY - Seemingly reliable. The best gateway for U.S. traffic.

ZL1AOX - Fully operational and active

VK5AGR - Fully operational, the most active and successful gateway outside the U.K.

from Connect International

AMSAT-TAPR DIGITAL
SIGNAL PROCESSING PROJECT UPDATE

Dr. Bob McGwier, N4HY, filed the following status report on the joint AMSAT-TAPR digital signal processing (DSP) project.

Nothing but good news for the holidays! We have all 20 DSP boards that folks have ordered from AMSAT and in addition, we will be sponsoring a few boards to DSP wizards. The first ten were mailed on December 20 from Clarksville, Maryland, and the remaining ten were picked up on December 19. Tom Clark, W3IWI, has copied diskettes for everyone, which consist of three floppies packed with archived data and PKARC utilities. Presently, I am writing documentation for the routines that Tom, Richard Allen, W5SXD, and I have written. There are several libraries of utility routines from David Langman and a wonderful library of routines and a spectrum analyzer from Richard which need EGA. Tom and I have included a less spiffy spectrum analyzer on the diskettes that make use of CGA. The routines from W5SXD are not DSP specific and, in general, may be used for fast EGA access.

We also have FIR filter design software, the Remez Exchange algorithm, written in Fortran. It is a standard and has been around for years. I am working on, but have not finished, a C program that takes the output of this and makes a TMS32010 (the DSP microprocessor) routine to do the FIR filter.

I performed a trick in DSP software that

demodulates the FO-12/W3IWI/TAPR-style modem by converting it into Bell-202 standard in order that you may use your unmodified TNC to gather packets from the bird. I have been waiting to announce the nicest piece of signal processing work I have ever done until I was near completion. It has been tested under vigorous circumstances, so I feel confident in telling you all about it. I have designed a piece of mathematical wizardry in software that allows you to demodulate (get ready for this) 1200 and 2400 bit/s BPSK; 1200, 2400, and 4800 bit/s QPSK; 4800 and 9600 bit/s CCITT V.29; 9600 bit/s CCITT V.32; coherent FSK (including GSMK and UO-11 standard) with all carriers at 1700 Hz (1800 Hz for one 2400 bit/s scheme, V.32 and UO-11) in telephone/SSB rig bandwidths. The changes come about by having different phase detectors for each mode (of course) and (again, of course) different clocks and bit decision routines. (Ah yes, it's only software!)

There is an adaptive equalizer that I am not yet completely satisfied with that adapts (now) at a lousy 200 bauds (not bits), which I want to get down to 100 bauds (remember this is adaptive and involves no training sequence, which could accomplish it) without making it unstable (based on the work of Godard). The mathematical wizardry that does the basebanding and carrier-tracking will easily fit on the TMS32010 and I will supply that in a month to the other members of the DSP project. Unfortunately, 4k words aren't enough with 144 data words to do a good job for the EQ and clock recovery/bit decision for Amateur Radio rigs (slop). I need 60 words alone for the EQ filter.

Also, Phil Karn, KA9Q, and I will be working on bit decision at 400 bit/s for Phase III-C as soon as I get the other stuff in the TMS32010. Tom made a few hundred suggestions on the FFT software and this made improvements (6 to 10 dB) that are being supplied with the first diskettes. A complete Bell 212A modem, including 300 bit/s fallback, EQ, etc, from TI's library, is supplied. 32-kbit/s ADPCM voice encoding software is included.

Al Sharback, WBØMPQ, will loan me a WEFAX compatible receiver to do that work. The DSP hardware work will slow down a little so that we may concentrate on the software work with the new team of folks and because the same people are working on at least one of PACSAT, UOSAT-C, PS186 networking code and, last but not least, real work and families.

We are supplying boards to Barry McClarnon, VE3JF, (see his QEX articles on HF modems, etc.) and James Miller, G3RUH, a terrific polymath and designer of several modems for the satellite community.

The stuff is beginning to look really good. There is more, but you get the picture. We are on our way!

from Bob McGwier N4HY, via CompuServe's HamNet

NOVICE NOTCH

ARIZONA

A node for Novices in the Phoenix area is operating on 223.56 MHz. This node is tied to all of the other nodes in the Phoenix area to allow Novices to access that network.

from I-Frame

NEW HAMPSHIRE

A Novice packet gateway is available from 2300 to 1100 UTC on 223.54 MHz in the Nashua, New Hampshire area. The gateway connects Novices digipeating through WA1OMM-2 on that frequency to the packet activity on 145.01 MHz. A non-forwarding local mailbox is also available on 145.01 and 223.54 MHz using the call WA1OMM-1.

by Paul MacDonald, WA1OMM,
from Nashua Area Radio Club Bulletin

(Gateway would like to continue to publicize Novice packet activities, so if you know of any, please let me know, too. - WA1LOU)

DCE ADDRESSING

I am going to begin to use the WA7MBL import and export system for DCE file transfers. This would work best if people could actually address their mail directly to the foreign station at the foreign PBBS. For example, to send a message to a station VK2ABC at the PBBS VK2XYZ, the user would simply type:

S VK2ABC @ WK2XYZ

Notice that the user would not have to know what DCE gateway would handle the message. This would allow me to have all messages automatically routed by my PBBS and by the foreign gateway with no human intervention. This is in contrast to the present system in which messages are addressed to "DCE @ GB3UP" and have destination gateway, destination PBBS and destination station listed elsewhere.

This proposal has the following results:

o GB3UP chooses the proper foreign gateway for all messages allowing (for example) selection of the most active US gateway.

o All UK PBBSs will have to be able to route foreign PBBS traffic toward GB3UP. On WA7MBL systems, this could be done by wild-carding and would be no problem. On systems without wild-carding, each foreign PBBS would have to be entered into the FWD file. (Note that all foreign PBBSs would not have to be entered - just those that users actually use to send messages.)

o Message turnaround time both at GB3UP and at the foreign gateways would be greatly reduced with no additional program development on my part.

by Jeff Ward, GØ/K8KA, from Connect International

PBBS SOFTWARE COMPILATION

I'm trying to compile a list of public domain packet-radio BBS programs for any/all computer(s). Specific information wanted is program name, what machine it runs on, does it support WØRLI standard forwarding, who is (are) the author(s), and where/how is it available. Additionally, does the program have any special features to make it more suitable for use as a "personal" mailbox? (By "personal" mailbox I mean a system not supporting "users," just the individual running the program to have automatic forwarding/delivery of WØRLI standard packet mail via a "host" PBBS.)

Please send your replies to Andy Funk, KB7UV (@ N2MH), 14-23 31st Avenue, Apt 4A, Astoria, NY 11106, telephone 718-956-0027, CompuServe user ID 74756,2055.

GATEWAY CONTRIBUTIONS

Submissions for publication in Gateway are welcome. You may submit material via the US mail to:

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Stan Horzepa, WA1LOU
75 Kreger Drive
Wolcott, CT 06716-2702

or electronically, via CompuServe to user ID 70645,247. Via telephone, your editor can be reached at 203-879-1348 on evenings and weekends, and he can switch a modem on line to receive text at 300, 1200, or 2400 bauds.

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